IN THE SPECIFICATION:

Please amend the specification as follows:

Prenumbered paragraph [0010] on page 3, has been amended as follows:

[0010] The Amplified *Mycobacterium Tuberculosis* Direct Test (Gen-Probe) targets mycobacterial ribosomal RNA by transcription-mediated amplification. The test uses DNA probes that are highly specific for ~~*M*~~ *M. tuberculosis* species. It is best used (and only approved for use) in patients in whom acid-fast bacilli smears are positive and cultures are in process. Since specificity is less than 100%, even in patients with positive smears, occasional false-positive results do occur, usually in patients with nontuberculous mycobacterial infections.

Prenumbered paragraph [0011] on page 3 has been amended as follows:

[0011] This technique amplifies even very small portions of a predetermined target region of ~~*M*~~ *M. tuberculosis*-complex DNA. The test uses an automated system that can rapidly detect as few as one organism from sputum, bronchoalveolar lavage, blood, cerebrospinal fluid, pleural fluid, or other fluid and tissue samples and has shown sensitivity and specificity of nearly 90% in pulmonary disease.

Prenumbered paragraph [0013] on page 4, has been amended as follows:

[0013] The US Centers for Disease Control and Prevention and the World Health Organization recommend initial susceptibility testing for all ~~*M*~~ *M. tuberculosis* isolates because of the emergence of drug resistance worldwide.

Prenumbered paragraph [0014] on page 4, has been amended as follows:

[0014] This ingenious assay uses the fluorescent capabilities of fireflies genetically implanted in ~~*M*~~ *M. tuberculosis*. The procedure offers the possibility of testing mycobacterial drug susceptibility in hours. It is in the development stages but may become widely available in the next few years.

Prenumbered paragraph [0015] on page 4 has been amended as follows:

[0015] Given the above, current available ~~assay~~ assays cannot quickly and completely detect ~~*M*~~ *M. tuberculosis*. It requires a quick assay with high specificity and sensitivity to detect ~~*M*~~ *M. tuberculosis* from available samples.

Prenumbered paragraph [0024] on page 5, has been amended as follows:

[0024] The present invention provides a method for detecting microorganism DNA comprising:

(a) hybridizing the microorganism cDNA with microorganism-specific probes in hybridization ~~tube~~ tubes wherein the probe is linked to a magnetic bead;

(b) transferring hybridization tubes to magnetic wells for washing;

(c) adding blocking solution into the tubes;

(d) adding avidin enzyme complex or streptavidin enzyme complex into the tubes;

(e) performing washing reaction to remove interfering material by the aid of magnetic field;

(f) suspending magnetic beads; and

(g) detecting the luminescent or color change after adding substrate of enzyme.

Prenumbered paragraph [0026] on page 6, has been amended as follows:

[0026] In general, any body fluid such as CSF, serum, blood, sputum, pleural effusion, throat swab and stools can be used in the clinical tests. The preferred samples for *M. tuberculosis* are from CSF, serum, blood, sputum, pleural effusion, and throat swab.

Prenumbered paragraph [0033] beginning on page 7, has been amended as follows:

[0033] In Particular, the means for controlling the temperature of the containers ~~to heat~~ heats the containers to perform the dissociation of nucleic acid double strands according to temperature change. The thermal controllers are easily bought from the device market. Because most of operating procedure after hybridization involves MagProbe, the means for controlling the magnetic force of the containers are integrated with the thermal controller to make the apparatus of the

invention. In particular, the means for controlling the magnetic force of the containers perform the magnetic change of magnetic bead to facilitate hybridization, washing and the separation of magnetic beads in the containers.

Prenumbered paragraph [0035] on page 8, has been amended as follows:

[0035] In the kit, the bioactive primers are made by reacting DNA labeling reagent with the primers. The DNA labeling reagent is one reagent labeling DNA. The preferred reagent ~~is not limited but the~~ is, but is not limited to a compound having the formula:

Fu-BE-D

Wherein Fu represents a furocoumarin derivative selected from the group consisting of angelicin derivatives and psoralen derivatives; ~~Wherein~~ wherein BE represents none or a binding enhancer selected from the group consisting of C4-12 alkyl, alkyenyl, polyalkylamine and polyethylene glycol; and ~~Wherein~~ wherein D represents a detectable group selected from the group consisting of: biotin, fluorescence, acridinium ester and acridinium-9-carboxamide. The most preferred DNA labeling reagent is 9-(4"-(Aminomethyl)-4', 5"-Dimethyl-angelicin) acridinium carboxamide.

Prenumbered paragraph [0036] beginning on page 8, has been amended as follows:

[0036] An assay system for detecting microorganisms, the system comprising:

(i) diagnostic kit for detecting microorganism cDNA comprising:

(a) a probe linked to a magnetic bead;

(b) bioactive primers;

(c) avidin enzyme complex or streptavidin enzyme complex; and

(d) enzyme substrate

(ii) an apparatus for performing the dissociation of nucleic acid double strands, hybridization, washing, the separation of magnetic beads and thermal control in the same apparatus, comprising:

(a) the means for fitting reaction containers;

(b) the means for controlling the temperature of the containers; and

(c) the means for controlling the magnetic force of the containers,

wherein the means for controlling the temperature of the containers are connected to the means for fitting reaction containers, and the means for controlling the magnetic force of the containers are connected to the means for fitting reaction containers;

(iii) a magnetic rack to bind the magnetic bead on the wall of the containers; and

(iv) a detector.

Prenumbered paragraph [0037] on page 9, has been amended as follows:

[0037] In the assay system of the invention, the kit further comprises hybridization buffer, washing buffer and blocking buffer. These buffers are easily purchased from commercial ~~products~~ suppliers such as those of Pierce, Biolab, Qiagen etc. In general, the assay system of the invention can reduce the whole process of *M. tuberculosis* detection to less than 5 hours.

Prenumbered paragraph [0041] on page 10, has been amended as follows:

[0041] Major Kit I:

(1) Lysis Buffer I (5 ml)

(2) Lysis Buffer II (4 ml)

(3) Hybridization Buffer (5 ml)

(4) Wash Buffer (60 ml)

(5) Lysis tubes (1.8 ml, 25 tubes)

(6) Hybridization tubes (12 x 75mm, 50 tubes)

(7) Extension buffer (~~3ml,~~ 3ml, stored in –20°C after arriving)

Prenumbered paragraph [0042] on page 10, has been amended as follows:

[0042] Major Kit-II : (50 reactions/kit, store in 4°C)

(1) MagProbe (~~450μl,~~ 450ml, stored in 4°C after arriving)

Prenumbered paragraph [0049] on page 12, has been amended as follows:

[0049] III. Target amplification: two steps

Step I:

(1) Set up a new 0.2 ml microfuge tube by ~~adding up~~ adding the following reagent:

Reagent	Volume
DNA	1µl
Reaction mixture*	49µl

* The reaction mixture contains the following cocktail:

Reagent	Volume
10X extension buffe	5µl
#4primer(TGAGGGCACGAGGTGGCA) **(SEQ ID NO: 8)**	5µl
#5primer(CGTAGGCGTCGGTCACAA) **(SEQ ID NO: 9)**	5µl
dNTP	1µl
Taq DNA polymerase (2U/µl)	0.5µl
ddH_2O	32.5µl

1. Initiate the following program with heated lid enabled

Extension program:

	Temperature	**Time**	**1. Number of cycles**
1	94°C	5 min	1 cycle

2	94°C 62.5°C 72°C	30 sec 15 sec 15 sec	30 cycles
3	72°C	10 min	1 cycle
4	4°C	Hold	- -

Step II:

1. Set up a new 0.2 ml microfuge tube by ~~adding up~~ adding the following:

Reagent	Volume
PCR product from step 1	15µl
Reaction mixture*	35µl

* The reaction mixture contains the following cocktail:

Reagent	Volume
10X extension buffe	5µl

#6primer(GATGCACCGTCGAACGGC) **(SEQ ID NO: 10)** 5µl

#7primer(CCACGTAGGCGAACCCT) **(SEQ ID NO: 11)** 5µl

dNTP	1µl
Taq DNA polymerase (2U/µl)	0.5µl
ddH_2O	18.5µl

2. Initiate the extension program.

*Extension program is the same as step I.

Paragraph [0050] on page 14, has been amended as follows:

[0050] IV. Hybridization

(1) In a hybridization tube, mix 125µl of ddH_2O, 15µl of MagProbe, 150µl of hybridization buffer and 10µl of each amplified DNA sample together.

(2) Keep hybridization tubes at 100°C dry bath for 5 min.

(3) Transfer hybridization tubes to a 60°C dry bath and hold for 20 min.

(4) Transfer hybridization tubes to magnetic wells of a magnetic dry bath and hold for 5 min.

(5) Remove hybridization buffer by aspiration.

(6) Add 1ml of pre-heated 60°C ~~Wash~~ wash buffer to each tube, vortex and put tubes back to magnetic wells and hold for 5 min.

(7) Remove hybridization buffer by aspiration.

(8) Repeat Steps 6-7.

(9) Keep hybridization tubes at RT.

Prenumbered paragraph [0059] on page 16, has been amended as follows: It will be readily apparent to a person skilled in the art that ~~varying~~ various substitutions and modifications may be made to the invention disclosed herein without departing from the scope and spirit of the invention.